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SQL Basics & Intermediate

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Introduction to SQL

- SQL stands for Structured Query Language
- Used to communicate with databases
- Common databases: MySQL, SQL Server, PostgreSQL, Oracle
- SQL lets you insert, update, delete, and query data

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Basic SQL Commands

▶ SELECT – retrieve data

▶ INSERT – add new data

▶ UPDATE – modify data

▶ DELETE – remove data

▶ CREATE – create tables/databases

▶ DROP – delete tables/databases

Filtering & Sorting

- WHERE – filter rows
- Operators: =, >, <, >=, <=, BETWEEN, LIKE, IN
- ORDER BY – sort results ASC/DESC
- DISTINCT – remove duplicates

Joins

► INNER JOIN – returns matching rows

► LEFT JOIN – all rows from left + matching from right

► RIGHT JOIN – all rows from right + matching from left

► FULL OUTER JOIN – all rows from both tables

Grouping & Aggregations

▶ GROUP BY – group rows by column

▶ HAVING – filter groups

Aggregate Functions:

▶ COUNT( )

▶ SUM( )

▶ AVG( )

▶ MAX( )

▶ MIN( )

Subqueries & CTEs

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▶ Subquery – query inside another query

Example: Find employees earning above average salary

▶ CTE (Common Table Expression) –

temporary named result set

▶ Makes queries more readable

Intermediate SQL

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- ▶ Window Functions (ROW_NUMBER, RANK, DENSE_RANK)
- ▶ CASE Statements – conditional logic
- ▶ Views – saved SQL queries
- ▶ Indexes – improve query performance
- ▶ Stored Procedures – reusable SQL code

Thank You

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